

11.0 CUMULATIVE IMPACTS

This chapter describes the potential for cumulative impacts, both direct and indirect, from the Build and No-Build Alternatives in combination with other past, present and reasonably foreseeable future actions.

Cumulative impacts analysis takes into account an array of potential actions and their impacts that are unrelated to the proposed action (Build Alternatives) except to the extent that their impacts may, in combination with the potential impacts from the proposed action, result in adverse impacts. Cumulative impacts are defined as follows in the Council on Environmental Quality's (CEQ) regulations (40CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40CFR 1508.7)

The purpose of cumulative impacts analysis is to look for impacts that may be minimal, and therefore, neither significant nor adverse when examined within the context of the proposed action, but that may accumulate and become significant and adverse when combined with other actions.

A separate cumulative impact study was completed for the Mississippi Scenic Riverway (*Cumulative Impacts Study for the Mississippi Scenic Riverway: St. Cloud (10th Street Bridge) to Anoka-Champlin (TH 169 Bridge)*, Mn/DOT, June 2003). The purpose of this study was to focus on the cumulative impacts that up to five new river crossings, including the I-94/TH 10 Interregional Connection, plus other anticipated actions in the study area (i.e., anticipated future development) could have to this 53-mile segment of the Mississippi River in recognition of its inclusion in the state Wild and Scenic River system. The *Cumulative Impacts Study for the Mississippi Scenic Riverway (Mississippi Scenic Riverway CIS)* also contained information on future demographic projections for the study area that were applicable to the cumulative impact assessment for this DEIS.

11.1 CUMULATIVE IMPACT METHODOLOGY

The goal of cumulative impact analysis is to consider the potential combined effects of past, existing and anticipated future actions, with the intent of identifying planning/implementation measures that can be taken to mitigate (avoid, minimize or otherwise alleviate) the effects of those actions. Based on the CEQ definition of cumulative effects and the goals stated, the study methodology followed these steps:

- Identify the time frame (past, present and future) for analysis.
- Identify the resources to be analyzed.

- Identify the geographic area to be considered in assessing each resource.
- Define past, present and future conditions.
- Assess impacts to resources resulting from the proposed project, other future actions in the study area, and the cumulative impact of these actions. This assessment includes the consideration/identification of avoidance and mitigation measures to alleviate adverse cumulative impacts to these resources.

11.1.1 Establish Time Frame for Analysis

The year 1976 was chosen as the ‘past’ reference year for this study. This is the year that construction of the new I-94 corridor between the Twin Cities and St. Cloud was completed. It is also the year that the Mississippi River was designated to become part of the state Wild and Scenic River system. Thus, 1976 represents a benchmark year with respect to the use and protection of the Mississippi River and to the transportation mobility and access between the Twin Cities and St. Cloud with resulting increased opportunities for growth and economic development along the corridor (see Section 11.1.4).

‘Existing’ conditions were defined as being based on year 2000 data, since data for that year is more readily available than 2002 data.

Year 2040 was selected as the ‘future’ conditions analysis year. Since the proposed project is not anticipated to be built for approximately 15 - 20 years, year 2040 would represent conditions an additional 20 years (a ‘typical’ planning horizon) into the future.

11.1.2 Identify Resources to be Analyzed

The cumulative impacts analysis is limited to those resources, ecosystems and human communities affected by the proposed Build Alternatives (the proposed action). While the proposed action may affect several resources either directly or indirectly, the purpose of the cumulative impacts analysis is to narrow the focus to the project-related impacts that could potentially have the largest cumulative impacts. For the proposed project, this analysis will focus on the cumulative impacts on the following issues/resources: wetlands; vegetation, wildlife and fisheries; state/federal threatened and endangered species; farmland; traffic noise; cultural resources; visual impacts; water quality; and the Mississippi Scenic Riverway.

11.1.3 Identify Geographic Area to be Studied for Each Resource

Chapter 10 described the potential secondary impacts for each of the DEIS alternatives. Chapters 4 through 9 of this DEIS analyzed the social, economic and environmental impacts that would occur within and immediately adjacent to the construction limits of the four Build Alternatives. However, for the purposes of assessing cumulative impacts, a broader geographic area must be considered in order to assess the combined effects of reasonably foreseeable future projects on resources in the DEIS study area. Since each resource has a different area of influence, the geographic area for each resource varied and is summarized below.

For the Mississippi Scenic Riverway an appropriate geographic boundary was determined to be the Mississippi Scenic Riverway Management Area as defined by the MnDNR (see Figure 6.6). Although the Mississippi Scenic Riverway Management Area's southern and northern boundaries (from 10th Street bridge in St. Cloud to the western border of the cities of Anoka and Champlin) extend far beyond the DEIS study area, impacts to Riverway scenic quality and recreational uses were considered in the context of the entire 53-mile corridor.

For the rest of the resources, an appropriate geographic boundary to the northeast was identified as parallel to and 0.5 mile beyond TH 10. To the southwest, the boundary was defined as parallel to and 0.5 mile beyond I-94. The western limits were defined as 0.5 mile west of the western-most limits of Alternative A within the City of St. Cloud. The eastern limits were defined as the eastern limits of the City of Becker.

11.1.4 Past, Present and Future Conditions in the Study Area

Over the last 30 years, the study area has experienced high growth rates resulting in increased urbanization along the I-94 and TH 10 corridors as development extends southeast from the St. Cloud metropolitan area and northwest from the Twin Cities metropolitan area. Table 11.1 shows the percent of population growth in communities within the study area between 1970 and 2000. Although the study area is currently dominantly rural in nature, communities within the study area are anticipating that this trend of growth and development will continue, resulting in increasing urbanization/suburbanization over the next 40 years.

For the purposes of this study, the 'reasonably foreseeable future actions' are assumed to be the population growth and resulting development and infrastructure planned/anticipated by the communities in the study area. Ideally, all potential future development activities in the study area would be identified as part of this analysis so that their potential impacts could be taken into consideration in combination with those from the Build Alternatives. However, given the large geographic area under consideration, and a general lack of specific information on potential future development activities (e.g., type, location, magnitude, timing), available information on general population and development plans/trends was used to estimate potential impacts from other actions.

The *Mississippi Scenic Riverway CIS* describes the methodology used to develop the year 2040 population and employment projections for the area that was also used in this DEIS analysis. It should be noted that discussions with communities within the study area indicated that the same amount of population and development growth would occur with or without a new/expanded I-94/TH 10 river crossing connection. As shown in Table 11.1, the projected 2040 numbers indicate that the population in the study area communities is anticipated to increase at or above increases experienced over the past 30 years. This would result in substantial portions of the northern (St. Cloud, Haven Township, St. Augusta) and southern (Becker, Becker Township) study area being impacted by continued expansion of development with additional, but lower intensity, development occurring in the central portion of the study area (Clearwater, Clear Lake).

**TABLE 11.1
POPULATION TRENDS AND PROJECTIONS FOR COMMUNITIES
WITHIN THE STUDY AREA**

Jurisdiction	1970 Population	2000 Population	Percent change from 1970 to 2000	Projected 2040 Population	Percent change from 2000 to 2040
Becker	365	2,673	39	25,000	394
Becker Township	799	3,605		6,000	
Silver Creek Township	1,102	2,332	112	5,500	136
Clearwater	282	890	160	5,000	232
Clearwater Township	585	1,368		2,500	
Clear Lake	280	266	113	900	169
Clear Lake Township	612	1,630		4,200	
Haven Township ⁽¹⁾	1,049	2,024	93	26,400	1,204
Lynden Township	511	1,919	276	3,200	67
St. Augusta	1,584	3,065	94	8,400	174
St. Cloud	39,691	59,107	49	103,300	75

⁽¹⁾ 2040 population estimates for Haven Township were provided by the St. Cloud APO. These estimates are higher than projections estimated by Haven Township, as this community has taken a low growth position. The higher projections were used for this study as a “worst case” scenario for trip generation and development impacts.

11.2 EFFECTS ON RESOURCES

To the degree possible, given available information/resources, the following steps were taken to analyze potential cumulative effects:

- Summarize the existing condition of each potentially affected resource as it compares to past conditions.
- Summarize impacts to the affected resources from the proposed action as described in the previous chapters of the DEIS.
- Summarize impacts to the affected resources from other reasonably foreseeable future actions.
- Discuss the potential cumulative impacts to the resource based on consideration of effects of all past, present and future actions. Assessment of potential cumulative impacts includes consideration of special designations or standards that relate to each resource; ongoing regulatory authority, policies, or plans that afford some measure of protection to the affected resources; and measures that could avoid or minimize negative effects on the resources. This discussion will include consideration of the incremental cumulative impact of the proposed action compared to the impacts of other future foreseeable actions (i.e., development).

11.2.1 Wetlands

11.2.1.1 Existing Conditions

Wetlands within the study area have been substantially affected in the past due to draining/filling for agriculture (during early European settlement of the area) and subsequent degradation by surrounding land uses (i.e. agricultural and urban/suburban uses). The Minnesota Board of Water and Soil Resources (BWSR) estimates that in 1981, approximately 72 percent of the pre-settlement wetlands remained in Sherburne County and that approximately 22 percent of the pre-settlement wetlands remained in Stearns and Wright Counties. Wetlands near agricultural land uses or population centers (e.g., Clearwater and Clear Lake) are often degraded by the introduction of nutrients and sediment and/or the presence of exotic or invasive species and are typically dominated by reed canary grass and cattails. A few high quality or notable wetlands exist in the project area, including wetland A-2, a large DNR-protected marsh surrounded by relatively undisturbed uplands and wetland B-1, a sedge meadow at the base of the east river bluff (see Figures 3.2-A.1 and 3.3-B.1, respectively).

Wetlands in Minnesota are regulated at the federal level by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. At the state level, the Minnesota Wetland Conservation Act regulates impacts to all wetlands in the state and the MnDNR regulates the wetlands that are also designated as Public Waters of the state. State and federal regulations require a sequencing process be followed before any wetlands may be impacted. First, all reasonable measures must be taken to avoid the wetland. If it is not possible to avoid wetlands, measures to minimize wetland impacts must be implemented. Only after these two steps have been completed are wetland impacts permitted, and then these impacts must be mitigated by compensatory measures. Wetland impacts under the jurisdiction of the MnDNR, as well as the Wetland Conservation Act, currently require replacement at a 2:1 ratio.

11.2.1.2 Impacts from the Proposed Action

As described in Section 7.5, Alternative A would result in 5.3 acres of wetland impact, Alternative B would result in 6.5 acres of wetland impact, Alternative C would result in 6.3 acres of wetland impact, and Alternative D would result in 9.0 acres of wetland impact. Alternative A would result in a minor impact (0.4 acre impact to the 64-acre wetland) to high quality wetland A-2. Alternative B would result in a minor impact (0.2 acre impact to a 4.5-acre complex) to another high quality wetland B-1.

Efforts to avoid and minimize wetland impacts occurred throughout the DEIS process. Further minimization and mitigation of wetland impacts will be considered once a preferred alternative is chosen. Additional design modifications will be considered during the design of the final project to further minimize wetland impacts. Best management practices will also be incorporated into final project design to minimize indirect wetland impacts.

Section 10.2.2 provides an estimate of additional wetland impacts that may result from “secondary” impacts associated with other TH 10 and I-94 improvements, which vary among the DEIS alternatives. No-Build, Alternative B and Alternative C secondary wetland impacts were estimated to be approximately the same: 23 acres; while Alternative A and Alternative D would have greater secondary impacts: 28 acres and 33 acres, respectively.

11.2.1.3 Impacts from Other Actions

Continued growth and development in the study area would likely result in increased potential for direct and indirect impacts to wetlands. Direct fill impacts would likely result from increasing development, although development would be required to follow sequencing (avoidance, minimization, compensatory mitigation) procedures previously described.

Potential indirect impacts on wetlands from past and future development also occurs from stormwater discharges into wetlands. Increased flow into wetlands can alter hydrology, causing changes in plant communities and disrupting life cycles of wetland inhabitants. Increases in stormwater flow and increased nutrients and sediment also result in wetland degradation, as noted in Section 11.2.1.1.

11.2.1.4 Potential for Cumulative Impacts

The majority of impacts to wetlands in the study area will likely result from planned future development rather than from construction of a new I-94/TH 10 Interregional Connection since future development will account for a much greater amount of land disturbance. However, compared to the impacts of wetland drainage/conversion from pre-settlement to post settlement conditions, which were considered substantial, the overall effect of future wetland impacts in the study area are anticipated to be small.

The potential for substantial adverse cumulative impacts on wetlands in the study area in the future is anticipated to be low due to the federal and state regulatory programs in place to protect wetlands. These regulatory programs not only require sequencing (with an emphasis on avoidance and minimization), but also include compensation (replacement) for wetland impacts. These programs also emphasize the importance of providing replacement wetlands of the same type within the same watershed as the impacted wetland in order to minimize the loss of wetland functions and values. In light of the pre-settlement to 1976 impacts, effective implementation of these regulations and mitigation strategies would help to minimize future cumulative wetland impacts. If adequate mitigation measures are not implemented, cumulative wetland impacts could be substantial.

11.2.2 **Vegetation, Wildlife and Fisheries**

11.2.2.1 Existing Conditions

Vegetation

As discussed in Section 6.5, the study area is located in an area of central Minnesota historically occupied by prairie and oak woodland. However, there was a substantial change in vegetation type from pre-settlement to 1969 as forest and prairie areas were converted into farmland. But from the 'past,' defined as 1976 for this cumulative impact analysis, to the present there has not been a substantial change in vegetation.

The major topographical feature in the study area is the Mississippi River valley. Much of the river corridor contains numerous wooded islands. While some areas of agricultural fields exist within the river valley, the river floodplain and bluffs have been relatively unscathed by development and are commonly wooded with elm, ash, cottonwood and box elder. Various grass and shrub species are present in the non-forested floodplain areas. Floodplain and bluff forests, while interrupted occasionally by residential development and floodplain farmland, form a more or less continuous corridor along the Mississippi River.

Land use outside the river valley is generally dominated by farmland with scattered wetlands, lakes and woodlands. Of the original vegetation types found in the study area, true open prairie has been the most depleted, with the vast majority of prairie areas now being utilized for agriculture. Common agricultural land uses in the study area include corn, soybeans, potatoes, pasture and hayfields. The remaining prairie areas are in danger of being destroyed for agriculture or residential development and are also in danger of being overtaken by exotic species from gardens and lawns.

The study area includes several natural communities including: dry oak savanna – barrens subtype; floodplain forest; wet meadow; oak forest – dry subtype; oak forest – mesic subtype; mesic prairie; rock outcrop; and oak woodland-brushland.

Wildlife

Woodlands, savannah and prairie in the study area provide habitat for a variety of animals such as white-tailed deer, red and gray fox, woodchuck, raccoon, cottontail rabbit and coyote. Small mammals in the study area include chipmunk, squirrel, weasel and pocket gopher. The Mississippi River valley also provides abundant habitat for various songbirds, waterfowl and raptors, and serves as a migratory flyway for hundreds of bird species. Wetlands in the study area are also used as habitat by numerous species, including muskrats, beavers, otters, turtles, frogs and many species of invertebrates.

Fisheries

The Mississippi River is home to dozens of fish species. Game fish such as channel catfish, walleye, muskellunge and northern pike are present in the river with moderate to high abundance. The stretch of the river within the proposed study area also supports a renowned smallmouth bass population that is nationally recognized.

11.2.2.2 Impacts from the Proposed Action

As discussed in Section 6.5, impacts to wildlife habitat from each of the alternatives were evaluated by assessing the impact of each alternative to sensitive wildlife habitat features such as identified natural communities and fish habitat. Construction of any of the Build Alternatives would directly impact some wildlife habitat and potentially create a barrier to wildlife movement along the river corridor. Two of the four Build Alternatives (Alternatives A and D) are located in the vicinity of important fisheries habitat. These potential impacts could be avoided/minimized during preferred alternative selection and final design minimization/mitigation for the project.

11.2.2.3 Impacts from Other Actions

Vegetation/Wildlife

Future development and related roadway construction in the study area could result in additional loss of wooded areas and grasslands (especially prairies), including additional fragmentation of habitat. Additional development-related roadways would also create barriers for wildlife movement and result in increased wildlife mortality. Conversion of agricultural land to residential uses could result in additional vegetative cover (i.e., lawn/landscaping), which could in turn increase habitat for suburban wildlife species.

Fisheries

Future development and associated roadways in the vicinity of the Mississippi River could affect the adjacent river impacting fisheries. Fish in the river could be affected by increased runoff and sedimentation if not properly mitigated as part of the future development.

11.2.2.4 Potential for Cumulative Impacts

The proposed project in combination with other future actions will have an impact on vegetation, wildlife and fisheries within the study area. The majority of impacts will likely result from future development since future development will account for a much greater amount of habitat conversion than the proposed bridge. However, compared to the substantial vegetation (and resulting wildlife) impacts that occurred from pre-settlement to post settlement conditions, the overall vegetation and wildlife impacts are anticipated to be small.

The proposed project, in combination with future development, is not anticipated to have an adverse cumulative impact on these resources if appropriate mitigation measures are implemented. Local development controls, conservation easements, tree replacement requirements and other measures to protect or increase available wildlife habitat (e.g., the riverway, grasslands, wetlands and wooded areas) would mitigate impacts, if regulatory agencies in combination with local jurisdictions work together to undertake such actions. If extensive development is allowed to occur without adequate mitigation (i.e. if existing or proposed development standards were to be relaxed in future rule-making for development standards in the riverway), the resulting cumulative impacts could be substantial.

11.2.3 **State/Federal Threatened and Endangered Species**

11.2.3.1 Existing Conditions

As identified in Section 6.6, the DEIS study corridors were reviewed for the presence of state/federal threatened, endangered or special concern species. Table 6.6.1 identifies these species. The *Mississippi Scenic Riverway Management Plan* identifies these same species plus additional state and federal protected species including: bald eagle (federal threatened and state special concern); peregrine falcon (state threatened); loggerhead shrike (state threatened); Blanding's turtle (state threatened); common moorhen (state special concern); red shouldered hawk (state special concern); plains pocket mouse (state special concern); cerulean warbler (state special concern); Acadian flycatcher (state special concern); black sandshell mussel (state special

concern); creek heelsplitter mussel (state special concern); Hill's thistle (state special concern); small-leaved pussytoes (state special concern); sea-beach needlegrass (state special concern); and butternut trees (state special concern). Since the DEIS and Mississippi Scenic Riverway habitats for these two studies are generally the same as the habitats within this cumulative impact study area, the above species could be present in the area under study for this cumulative impact assessment.

11.2.3.2 Impacts from Proposed Action

The Build Alternatives considered as part of the I-94/TH 10 Interregional Connection project have the potential to affect the following protected species: bald eagles within the river corridor; mussels in the river; Blanding's turtles in sandy outwash areas; and loggerhead shrikes in open areas. After a preferred alternative is selected, mitigation measures to avoid, minimize or alleviate impacts to threatened/endangered or other protected species would be defined during final design.

11.2.3.3 Impacts from Other Actions

Future development and roadway construction in the study area could result in impacts to state/federal threatened or endangered species. As detailed information on the type, extent and location of future development is uncertain at this time, it is difficult to provide detailed assessment of potential impacts. Impacts would likely be greatest if development occurs in relatively 'natural' vegetation areas and in or adjacent to wetlands, the Mississippi River or other water features.

11.2.3.4 Potential for Cumulative Impacts

The proposed project in combination with other future actions could have an impact on state/federal threatened and endangered species. However, future development has a greater potential for impact on these species than the I-94/TH 10 Interregional Connection project since more land would cumulatively be affected by development and because development is less likely to require environmental review. Many development projects are not large enough to meet the state environmental review regulations; assessment of impacts is required if a development is large enough to require an EAW/EIS. Otherwise, local development review and/or watershed district review are currently the only protections. Local governments and individual landowners could further protect these species through sustainable planning practices or other strategies to preserve sensitive habitats as open space or greenway corridors to preserve wildlife travel routes.

The I-94/TH 10 Interregional Connection project is subject to state and federal environmental review process requirements. These requirements include identification of threatened, endangered and/or rare species in the project area and documentation of efforts to avoid, minimize and/or mitigate for impacts. Therefore, the additional incremental impact from the proposed project would be small compared to the impacts from future development. However, these combined actions are not anticipated to have an adverse cumulative impact on these resources if appropriate mitigation measures are implemented. If adequate mitigation is not implemented for future development and the proposed project, the resulting cumulative impacts could be substantial.

11.2.4 Farmland

11.2.4.1 Existing Conditions

With the exception of developed land within the cities of Clearwater and Clear Lake, the study area is dominated by agricultural land uses.

11.2.4.2 Impacts from the Proposed Action

As discussed in Section 6.3, the Build Alternative would require between 12 and 162 acres of prime and statewide important farmland depending on the alternative selected. The Build Alternatives would not result in substantial impacts to farmland. With each of the Build Alternatives, converted farmland would be less than one percent of the total farmland within each county.

Section 10.2.2 provides an estimate of additional farmland impacts that may result from “secondary” impacts associated with other TH 10 and I-94 improvements, which vary among DEIS alternatives. No-Build, Alternative B and Alternative C secondary impacts to farmland were estimated to be approximately the same: 349 acres. Alternative A secondary impacts would be somewhat lower – 252 acres – while Alternative D impacts would be higher: 539 acres.

11.2.4.3 Impacts from Other Actions

Future growth in the study area would include the development of areas that are currently used primarily for agricultural purposes, resulting in the conversion of agricultural land into residential and commercial uses. However, the rate and extent of farmland conversion to urban land uses is dependent on a number of factors, including land values and tax rates for development versus for agriculture; overall farm economy trends; age of farm owners; and proximity of farmland to existing developed areas. The location and degree of land conversion in the study area will also be guided by local zoning regulations.

11.2.4.4 Potential for Cumulative Impacts

The proposed project in combination with future development could result in a substantial loss of valuable farmland within the study area if development pressure in the study area occurs. However, the incremental impact of the proposed I-94/TH 10 Interregional Connection on farmland would be small compared to the impact from future development, which would impact more farmland. In order to protect farmland within the study area, local governmental units have the authority to regulate development and can take measures to protect farmland as part of their local planning efforts.

11.2.5 Traffic Noise

11.2.5.1 Existing Conditions

As addressed in Section 6.2, state and federal standards are used to regulate traffic-related noise. Certain land uses such as residential units, parks, recreation areas, etc., are more sensitive to noise impacts. Where sensitive receptors are located near high-volume roadways, noise levels

that exceed state and federal noise standards are common, especially during peak traffic hours. As discussed in Section 6.2, existing noise levels in the study area vary from the low 40s dBA (well below state daytime and nighttime standards) in isolated areas, to levels in the 63 to 71 dBA range (above state daytime and nighttime standards) at I-94 and along TH 24 (in the cities of Clearwater and Clear Lake). Throughout the three-county study area, similar exceedances would be expected in development areas near major roadways, while more rural areas would be expected to be below both daytime and nighttime standards.

11.2.5.2 Impacts from the Proposed Action

Construction of any of the Build Alternatives would result in an increase of noise levels by the year 2040 from 0 to 11 dBA over existing conditions in areas close to existing high volume roadways, and up to 27 dBA in isolated areas currently not exposed to traffic noise. For comparison purposes, increases in traffic volumes by the year 2040 would result in No-Build noise levels increasing by up to 23 dBA over existing noise levels within the project area.

A noise mitigation analysis would need to be conducted for the preferred alternative during the FEIS process. This process would include further analysis of noise impacts along the selected corridor, discussion of noise mitigation alternatives, and cost-effectiveness calculations and reasonableness discussions for noise barriers.

11.2.5.3 Impacts from Other Actions

Anticipated land development within the study area would both increase the number of sensitive receptors and the number of roadways that generate traffic noise, as well as other sources of noise. The effects of traffic noise on sensitive receptors involve several characteristics such as the distance between the noise source and sensitive receptor, the amount of traffic on a particular road, natural or man-made barriers, the layout of adjacent neighborhoods, topography and many other factors.

As development in the study area increases, traffic volumes along county roads are also anticipated to increase, thereby generating noise levels that could approach state regulatory thresholds. However, unlike interstate and trunk highways, these county roads would not be subject to compliance with state noise requirements. To minimize/mitigate traffic noise impacts to noise sensitive development, local governments can work with developers to locate these types of development away from high volume roadways and/or require developers to incorporate noise mitigation strategies (i.e., insulation, berming, etc.) into development plans.

11.2.5.4 Potential for Cumulative Impacts

The number of sensitive receptors experiencing noise levels exceeding state standards is expected to increase in the study area as development and traffic levels increase. However, the potential for adverse cumulative noise impacts would be minimized if appropriate mitigation measures are implemented. Where feasible, noise mitigation along high-volume roadways (i.e., interstates and trunk highways) must be considered to satisfy state and federal requirements, lessening potential cumulative noise impacts. In addition, the identification of a preferred Build Alternative would allow for local governments to plan for future land development to be located

away from the proposed corridor to minimize noise impacts to sensitive receptors. Local government units also have the authority to decrease noise impacts on sensitive receptors by requiring appropriate sub-division design that would create a buffer to reduce the impacts of traffic noise on sensitive receptors, requiring noise insulation or restricting time periods when noise can be generated. If appropriate mitigation is not implemented for the proposed project and future development, the resulting cumulative impacts could be substantial.

11.2.6 Cultural Resources

11.2.6.1 Existing Conditions

‘Historic Values’ was one of the criteria identified for including the Mississippi River in the Wild and Scenic River system. This cumulative impacts analysis includes consideration of important historical structures and archaeological sites along the corridor.

The 2003 Mississippi Scenic Riverway Management Plan identifies several cultural and historical features along the riverway. In addition, a predictive model for archaeological resources in Minnesota, Mn/Model, indicates that the majority of the river corridor has a high potential for the presence of surface and buried archaeological resources since native peoples and early European settlers tended to concentrate in the vicinity of riverways. However, field-testing would be required to confirm the presence, extent and importance of cultural and historical structures and archaeological resources.

Additional structures within the corridor may be added to the list of potentially significant historical sites between now and 2040, since consideration for eligibility as a historic structure requires an age of 50 years or more.

11.2.6.2 Impacts from the Proposed Action

As discussed in Chapter 8, Alternatives A and B are the only two Build Alternatives that have the potential to affect eligible or listed NRHP properties/resources within the study area. Three eligible or potentially eligible pre-contact archaeological sites are within the vicinity of Alternative A. Alternative A could also impact a potential historical archaeological site. If Alternative A is identified as the preferred alternative, and if any of these sites are determined eligible and within the project limits, an assessment of effects and appropriate mitigation for these sites would be considered. Alternative A would also have an adverse effect on a historic farmstead that has been recommended for eligibility on the NRHP. Alternative B could impact a potential historical archaeological site. If Alternative B is identified as the preferred alternative, additional investigation of this site would be needed to determine the site's eligibility and, if applicable, extent of impact and appropriate mitigation measures.

11.2.6.3 Impacts from Other Actions

Unless development projects are large enough to require state or federal environmental review (including consideration of potential cultural resource impacts), future development could affect cultural resources unless local governments have identified the resources. Archaeological resources along the riverway could also be impacted directly by development or infrastructure

construction or by impacts resulting from excavation for borrow or fill material for development or roadway construction. Future impacts to known historic structures and sites can be avoided if these sites are identified in local planning documents and measures are taken during local government review of future development projects to avoid impacts.

11.2.6.4 Potential for Cumulative Impacts

Substantial cumulative impacts to cultural resources are not anticipated in the future given the level of state and federal regulation to avoid and minimize impacts to potentially significant cultural resources. Riverway management strategies also include identification and protection of these resources. However, if identified important cultural resources impacts are not monitored by local governments responsible for approving future development, and if identified resources are not avoided/mitigated, then significant cumulative impacts could result.

11.2.7 Visual

11.2.7.1 Existing Conditions

Visual character varies considerably within the study area, including natural areas, agricultural areas, rural residential, and developed or urbanized areas. Visual elements within the study area can be divided into two groups: natural and cultural. Natural elements include those visual elements not constructed by humans. The most dominant feature of the natural environment is the Mississippi River valley; however, other natural features include wetlands, forests and open grassland remnants. Cultural elements include those visual elements that are the result of human modification of the natural environment or construction activities such as clearing for agriculture and construction of homes, businesses, and existing roadways. Together the natural and cultural environments combine to create four general types of landscapes found within the study area. These landscapes include:

- General Rural Landscape – dominated by agricultural and rural residential elements, interspersed with some natural elements.
- Small City Landscape – includes the cities of Clearwater and Clear Lake along existing TH 24.
- Mississippi River Corridor/Mississippi Scenic Riverway – characterized by topography with more relief than the primarily flat topography of the overall study area. Along the Riverway, the bluffs and shoreline are predominately heavily wooded.
- Highway Landscape – I-94, TH 10 and TH 24 currently comprise this landscape, including isolated residences and businesses along TH 24 and TH 10.

11.2.7.2 Impacts from the Proposed Action

As discussed in Section 6.7, the I-94/TH 10 Interregional Connection project includes the construction of a new major roadway through a primarily rural environment – except for Alternative B, which runs through a small city environment and a rural area. All four of the

Build Alternatives would result in changes to the natural visual elements of the study area (e.g., the rural landscape and the Mississippi River corridor) which would alter the existing visual quality by converting the existing landscape into a highway landscape. Alternative B would also result in visual changes to the small city landscape of Clearwater with the presence of a larger highway facility through the city. The Build Alternatives would also result in visual/scenic impacts to the Riverway, which area described in detail in Section 6.10 (Wild and Scenic River). However, Alternatives A, C and D would result in greater visual impacts to the Riverway than Alternative B because they include the construction of a new bridge within a new corridor.

11.2.7.3 Impacts from Other Actions

The study area will experience increased development as the Twin Cities metropolitan area expands northwesterly and the St. Cloud metropolitan area expands southwesterly. It will change from a primarily rural/agricultural area to a more urban/suburban environment. The extent of visual impacts resulting from future development is dependent on how that development is allowed to occur.

In addition to substantial growth in the rural portions of the study area, development would also likely occur adjacent to the Riverway affecting the aesthetic values of the Mississippi River valley. The affect of future development on the visual quality of the river will depend on the land use and vegetation management ordinances implemented by communities along the Riverway and the extent to which communities and residents along the Riverway adopt river stewardship as part of their development philosophy. The recently completed *Mississippi Scenic Riverway Management Plan* includes recommendations for increasing natural vegetation retention requirements for new development along the Riverway. If these proposed recommendations are adopted during rule making and implemented by local governments they will help to protect the scenic character of the Riverway.

11.2.7.4 Potential for Cumulative Impacts

The I-94/TH 10 Interregional Connection project in combination with future development would result in changes to the study area's existing landscape, changing the visual character of the study area from dominantly rural to dominantly suburban. The Build Alternatives would result in a smaller amount of visual impacts than future development based on the area of land that would be converted to non-rural uses. Local communities can mitigate visual impacts through local land use and development regulations. Section 11.2.8 below includes a description of the potential cumulative visual impacts on the scenic and recreational values of the Mississippi Scenic Riverway.

11.2.8 Mississippi Scenic Riverway

11.2.8.1 Existing Conditions

The Mississippi River is designated as a state Wild and Scenic River for the 53-mile length of river from the 10th Street dam in St. Cloud to the western border of the Cities of Anoka and

Champlin in the Twin Cities. Specifically, it is designated as ‘scenic’ from the 10th Street bridge in St. Cloud to the TH 24 bridge in Clearwater and ‘recreational’ from Clearwater downstream to Anoka. Beyond the DEIS study area, the Mississippi River is also designated as a state Critical Area and as a component of the National Park System (Mississippi National River and Recreation Area [MNRRA]) from its confluence with the Crow River (in Dayton) downstream to just south of Hastings, Minnesota.

Criteria for inclusion of this section of the Mississippi River in the state Wild and Scenic Rivers system include: historic, scenic, recreational and natural/scientific values (see Section 6.10 of this DEIS). Other sections of this chapter describe the cumulative impacts to important existing natural and cultural features in the Riverway (e.g., visual quality; and fish, wildlife and vegetation). Rather than repeat the discussion of resources described in other sections, this section will focus on describing impacts to the scenic and recreational aspects of the riverway as they relate to riverway users and as they relate to the ‘scenic’ and ‘recreational’ designations. Impacts related to other values of the riverway are discussed in less detail since they are described in greater detail in other sections of this chapter and in the *Cumulative Impacts Study for the Mississippi Scenic Riverway (Mississippi Scenic Riverway CIS)*.

Since recreational users of the riverway move throughout the corridor (i.e., not just at the location of proposed DEIS alternatives), the potential cumulative impacts from the combined effects of the proposed alternatives (‘Proposed Action’) as they relate to anticipated future development and from other potential river crossings along the 53-mile segment of the river (‘Other Action’) also needs to be considered. Thus, for this DEIS cumulative impact assessment, the geographic boundary for the riverway extends along the riverway from the 10th Street dam in St. Cloud to the western border of the cities of Anoka and Champlin.

11.2.8.2 Impacts from the Proposed Action

As discussed in Section 6.10, the DEIS Build Alternatives vary in their potential impacts to the scenic quality and recreational use of the riverway by introducing a new bridge as a strong visual element across the riverway and introducing traffic noise and light pollution. The impacts of the Build Alternatives vary in where they are located with respect to less developed areas or areas of high scenic quality in the riverway. The Build Alternatives also vary in how they affect the experience of riverway users as they move through the river corridor, (i.e., how they relate to the location of other river crossing visual and noise intrusions along the corridor). Build Alternative B and the No-Build Alternative maintain these impacts within the existing TH 24 corridor, Alternative C keeps the impacts within 1.5 miles downstream from the TH 24 crossing, and Alternatives A and D are located more distant from other existing river crossing bridges. The No-Build Alternative and Build Alternatives A, C and D all include reconstruction of the existing TH 24 bridge, which may also change the character of the existing crossing.

Alternative A impacts the Hurrle farmstead historic resource. Impacts to the natural/scientific values of the riverway vary among DEIS alternatives, but all alternatives have some potential for impacts to fisheries, water quality, vegetation and/or wildlife.

11.2.8.3 Impacts from Other Actions

Other foreseeable actions that may occur within the Mississippi Scenic Riverway corridor by year 2040 include: 1) additional development along the riverway and 2) construction of additional bridges across the riverway to meet projected travel demands. As noted previously, the *Cumulative Impacts Study for the Mississippi Scenic Riverway (Mississippi Scenic Riverway CIS)* was prepared in 2003 to assess the potential cumulative impacts to the riverway. The findings of that study are the basis of the following discussion.

Additional Development Along the Riverway

As noted in Section 11.1.4, the riverway is located in an area of increasing development that is anticipated to continue into the future as the Twin Cities and St. Cloud metropolitan areas continue to expand. Future development of land immediately adjacent to the riverway is anticipated to occur as part of this overall expansion. The impacts from this development were included in the *Mississippi Scenic Riverway CIS* 'Future Development' scenario.

The Future Development scenario included anticipated growth in communities along the riverway through 2040. Assuming development would be consistent with the rivertown and rivertown expansion districts identified in the 2003 Riverway Management Plan, extensive development would likely occur adjacent to the riverway from Monticello downstream to the Twin Cities and from St. Cloud downstream to approximately St. Augusta Island – potentially affecting approximately 25 to 40 percent of the length of the riverway to varying degrees. One quarter of the length of the riverway would have relatively intensive rivertown uses on at least one side of the river. The rivertown district would allow for more intensive development densities than the other riverway districts, and although it utilizes setback and shoreland vegetation preservation requirements, this district has, or would likely have in the future, development that is more visible from the river than development in the other lower density land use districts. An additional 15 percent of the length of the river is proposed for rivertown expansion district designation, with densities of up to one unit per acre, but also with a shore impact zone requirement to protect at least 75 percent of the natural vegetation along the shore, to help maintain a more 'natural' character along the river.

All development adjacent to the riverway would be subject to existing and potential future zoning requirements. Existing zoning within the 'scenic' and 'recreational' designation areas limits lot sizes and densities, restricts building heights and specifies water and bluff setback requirements based on the 1976 Riverway Management Plan recommendations. If the standards proposed in the 2003 Riverway Management Plan are enacted as a result of updated rulemaking, additional requirements would be adopted for increasing bluff setbacks and for protecting native vegetation (preserve at least 75 percent of natural vegetation) along the river. The net result would be increased development along the riverway, with resulting visual, noise, vegetation, wildlife, erosion/sedimentation, etc. impacts from the existing and future development. However, the impacts to the scenic/recreational values and natural/scientific values of the riverway would be moderated by the development standards described above.

Additional Bridges Across the Riverway

In anticipation of increased traffic levels resulting from the projected increased population and commercial development described in Section 11.1.4, transportation planners from Mn/DOT, the St. Cloud APO and the Twin Cities Metropolitan Council have identified the need for additional capacity and/or new bridge crossings over the Mississippi Scenic Riverway to facilitate travel between communities on either side of the river and/or to facilitate regional trips across the river. These planning efforts have identified the independent need for two new/increased capacity crossings in addition to the proposed I-94/TH 10 Interregional Connection in order to meet projected travel demands within the next 20 years:

- The 33rd Street crossing in the southeast corner of the St. Cloud metropolitan area, under study by the St. Cloud APO, located in the Mississippi Scenic Riverway.
- The Dayton-Ramsey crossing between the Cities of Dayton and Ramsey in the northwest Twin Cities metropolitan area, under study by Mn/DOT, located in the Mississippi Scenic Riverway and the Critical Area/MNRRRA.

These projects are currently in separate (independent) scoping-level studies, in anticipation of preparation of Environmental Impact Statement (EIS) documents as each study process continues. Implementation for each of these projects is likely to be 10 to 20 or more years in the future.

In addition to these two proposed river crossings, travel forecasting performed for the *Mississippi Scenic Riverway CIS* identified the potential need for two more crossings within the Mississippi Scenic Riverway—one located east of the existing TH 25 crossing in Monticello and one located west of Elk River—to meet future travel demands. No active planning is occurring for bridges at these locations. Expected development of these crossings is anticipated to be beyond 20 years. Figure 11.1 shows the locations of the two crossings already proposed (33rd Street and Dayton-Ramsey) and the two potential additional crossings in Monticello and Elk River.

One way of assessing the potential impact of additional bridge ‘intrusion’ on the ‘natural’ experience of a recreational river user traveling down the river is to compare the existing bridge spacings with potential future bridge spacings for the various alternative locations. DNR staff compiled the following bridge encounter scenarios, based on the existing and maximum number of additional future bridges (assuming that the potential bridge west of Elk River is located 4.6 miles upstream from the County Road 42 bridge). The future scenarios reflect the No-Build and four Build Alternative locations being considered for the proposed I-94/TH 10 Interregional Connection:

Current Bridge Encounters

There is a canoe put-in at the upstream limit of the Mississippi Scenic Riverway at River Mile 926.1 in St. Cloud. Heading downstream today, or if no bridges are constructed in the future, the river user would encounter the following bridges:

Highway 24 at Clearwater	12.9 miles
Highway 25 at Monticello	16.7 miles
County Road 42 at Elk River	12.6 miles
Highway 101 at Elk River	1.1 miles
Highway 169 at Anoka	11.2 miles (this is beyond the downstream limit of the Mississippi Scenic Riverway)

With up to five additional proposed bridges, encounters by river users would become much more frequent. Beginning at the same point, as a “worst case,” the future river user would encounter the following bridges for the five DEIS No-Build and Build Alternative scenarios, in combination with the other (up to four) additional bridges identified in the *Mississippi Scenic Riverway CIS*:

Future Scenario 1: I-94/TH 10 Alternative A*

33rd Street at St. Cloud	2.6 miles
I-94/TH 10 Alternative A	4.3 miles
Highway 24 at Clearwater	6.0 miles
Highway 25 at Monticello	16.7
Potential Monticello bridge	1.0 miles
Potential West Elk River bridge	7.0 miles
County Road 42 at Elk River	4.6 miles
Highway 101 at Elk River	1.1 miles
Dayton/Ramsey	7.0 miles
Highway 169 at Anoka	4.2 miles (this is beyond the downstream limit of the Mississippi Scenic Riverway)

* Under the above scenario, the segment of river classified as ‘scenic’ would contain two new bridges.

Future Scenario 2: I-94/TH 10 Alternative B

33rd Street at St. Cloud	2.6 miles
I-94/TH 10 Alternative B/ Highway 24 at Clearwater	10.3 miles
Highway 25 at Monticello	16.7 miles
Potential Monticello bridge	1.0 miles
Potential West Elk River bridge	7.0 miles
County Road 42 at Elk River	4.6 miles
Highway 101 at Elk River	1.1 miles
Dayton/Ramsey	7.0 miles
Highway 169 at Anoka	4.2 miles (this is beyond the downstream limit of the Mississippi Scenic Riverway)

FIGURE 11.1 COLORED 11 X 17

BACK

Future Scenario 3: I-94/TH 10 Alternative C

33rd Street at St. Cloud	2.6 miles
Highway 24 at Clearwater	10.3 miles
I-94/TH 10 Alternative C	1.4 miles
Highway 25 at Monticello	15.3 miles
Potential Monticello bridge	1.0 miles
Potential West Elk River bridge	7.0 miles
County Road 42 at Elk River	4.6 miles
Highway 101 at Elk River	1.1 miles
Dayton/Ramsey	7.0 miles
Highway 169 at Anoka	4.2 miles (this is beyond the downstream limit of the Mississippi Scenic Riverway)

Future Scenario 4: I-94/TH 10 Alternative D

33rd Street at St. Cloud	2.6 miles
Highway 24 at Clearwater	10.3 miles
I-94/TH 10 Alternative D	7.8 miles
Highway 25 at Monticello	8.9 miles
Potential Monticello bridge	1.0 miles
Potential West Elk River bridge	7.0 miles
County Road 42 at Elk River	4.6 miles
Highway 101 at Elk River	1.1 miles
Dayton/Ramsey	7.0 miles
Highway 169 at Anoka	4.2 miles (this is beyond the downstream limit of the Mississippi Scenic Riverway)

Future Scenario 5: I-94/TH 10 No-Build Alternative

33rd Street at St. Cloud	2.6 miles
Highway 24 at Clearwater	10.3 miles
Highway 25 at Monticello	16.7 miles
Potential Monticello bridge	1.0 miles
Potential West Elk River bridge	7.0 miles
County Road 42 at Elk River	4.6 miles
Highway 101 at Elk River	1.1 miles
Dayton/Ramsey	7.0 miles
Highway 169 at Anoka	4.2 miles (this is beyond the downstream limit of the Mississippi Scenic Riverway)

Comparison of existing with the “worse case” future bridge scenarios demonstrates that the ‘natural experience’ on the riverway would change due to more frequent bridge encounters if up to five additional bridges were constructed compared to existing or Future Development (but no additional bridges) conditions.

The cumulative impacts on the scenic ('natural') quality of the riverway from up to five additional bridges was also assessed in the *Mississippi Scenic Riverway CIS* based on the location of the potential future bridges relative to developed or undeveloped areas. Developed areas would include the segments along the riverway designated for river town or river town expansion districts on at least one side of the river in the 2003 Riverway Management Plan, with the remainder of the riverway being considered as relatively undeveloped. The impacts vary depending on the I-94/TH 10 Interregional Connection alternative, but assuming a 'worst case' condition (the maximum possible bridges in undeveloped areas), bridge visibility would result in approximately three additional river-miles (or an additional six percent of the total length of the riverway) of intrusion of development into the "undeveloped" riverway landscape. (This assumes a 'worst case' scenario of one mile downstream visibility for each bridge.)

If the impacts of additional bridges are based on comparison to the existing 'scenic' and 'recreational' designation areas, then the 'worst case' scenario (assuming I-94/TH 10 Alternative A was constructed in the 'scenic' section of the riverway) would result in two additional bridges in the 13-mile long scenic section of the riverway and three additional bridges in the 40-mile long recreational section.

In addition to the scenic/recreational impacts described above, additional river crossing bridges can contribute to cumulative vegetation, wildlife, fisheries, and water quality impacts, contributing to impacts to the natural/scientific values of the riverway. Impacts can be avoided/minimized through project location/design, as described in greater detail in the *Mississippi Scenic Riverway CIS*.

11.2.8.4 Potential for Cumulative Impacts

As described in the previous sections, future total development has the potential to affect approximately 25 to 40 percent of the length of the riverway to varying degrees. One quarter of the length of the riverway would have relatively intensive rivertown uses on at least one side of the river. The rivertown district would allow for more intensive development densities than the other districts, and although it utilizes setback and shoreland vegetation preservation requirements, this district has, or would likely have in the future, development that is more visible from the river than development in the other lower density land use districts. An additional 15 percent of the length of the river is proposed for rivertown expansion district designation, with densities of up to one unit per acre, but also with a shore impact zone requirement to protect at least 75 percent of the natural vegetation along the shore, to help maintain a more 'natural' character along the river. The potential construction of up to five additional bridges would bring the total number of bridges across the riverway up to nine bridges. The intrusion of new bridges on undeveloped areas (outside river town and river town expansion districts), when added to the development intrusions, could result in up to three additional river miles of bridge visibility impact, effectively adding the incremental impacts of six percent more visual intrusion into relatively undeveloped sections of the riverway.

Future development and related infrastructure within the riverway will also contribute to cumulative impacts to the natural/scientific values of the riverway, including wildlife, vegetation, fisheries and water quality. Development beyond the riverway management boundary, but within the Mississippi River watershed, will also contribute to cumulative impacts to water quality in the riverway.

As noted in the *Mississippi Scenic Riverway CIS*, the actual extent of cumulative impacts that will occur from future development and additional bridges is dependent on how effectively mitigation strategies are implemented during development of future projects. Adoption of the development standards proposed in the 2003 Riverway Management Plan and implementation of clustering and other low-impact development strategies would help reduce the cumulative scenic and natural/scientific impacts of future development. Promotion of river stewardship is also emphasized as a management strategy in the 2003 Riverway Management Plan. Involving residents of the riverway in education and action programs would help promote better stewardship by individual landowners, potentially minimizing impacts of erosion/sedimentation, vegetation clearing, setback violations, illegal structures and other potential visual intrusions on the riverway. Section 6.10.3 of this DEIS outlines mitigation strategies that can be implemented in all future bridge projects to minimize impacts to the scenic character of the riverway.

As described in the *Mississippi Scenic Riverway CIS*, the I-94/TH 10 Interregional Project in combination with future development could result in additional future impacts that could threaten two of the values for which the Scenic Riverway was established: scenic quality and recreational user quality of the Riverway. However, mitigation strategies were identified in the study that, if implemented, would minimize and/or alleviate impacts to the riverway such that the values for which it was designated as a Wild and Scenic River would not be substantially impaired. Detailed descriptions of potential mitigation strategies for the Mississippi Scenic Riverway are included in the *Mississippi Scenic Riverway CIS*. The study also noted that implementation of mitigation strategies will require on-going planning, education and regulatory efforts by many parties, including:

- State resource protection agencies (planning, permitting and education)
- Local governments (planning, permitting and education)
- Regional planning agencies (planning)
- Regional water agencies (planning, permitting and education)
- Local citizens and Riverway users (education and monitoring)
- Transportation agencies (corridor selection and appropriate design)

It is important for these parties to recognize the potential for future cumulative impacts that could impair the quality of all values of the riverway, and the need to work together to implement planning and mitigation strategies to avoid, minimize and alleviate potential future impacts to the riverway.

11.2.9 Water Quality

11.2.9.1 Existing Conditions

The study area lies within the Mississippi River watershed, with sub-watersheds that include various rivers, lakes, streams and wetland features. All of the sub-watersheds ultimately drain to the Mississippi River. A considerable portion of the drainage area of the Mississippi River is located above the northern limits of this cumulative impacts analysis, thus water quality within the riverway segment of the Mississippi River is influenced by land uses and water quality

improvement practices upstream from the Riverway. Localized land uses (e.g., erosion, pollutant discharge, etc.) can also have an effect on the quality of the Mississippi River. According to the *Mississippi Scenic Riverway Management Plan*, water quality in the portion of the Mississippi River that is located within this study area is generally good. However, in 2002 the section of the Mississippi River from the Clearwater River to the Elk River was added to the MPCA's list of impaired waters. Smaller water bodies within the study area are affected by drainage from adjacent land uses.

11.2.9.2 Impacts from the Proposed Action

As described in Section 7.1.2, each of the four Build Alternatives would increase the amount of impervious surface area within each of the respective project corridors, thus increasing the quantity of stormwater runoff. If not properly mitigated, increased runoff volumes could result in a variety of negative impacts on receiving water bodies, including increased chances of flooding, erosion of streambanks and drainage ways, decreased ground water base flow due to less infiltration and degraded water quality.

As described in Section 7.2.3, the proposed project would include design features to effectively treat roadway and bridge runoff prior to discharge into surface waters. In addition to runoff treatment, standard specifications would be required for erosion/sedimentation prevention and control during construction.

11.2.9.3 Impacts from Other Actions

Future development in the study area will convert primarily agricultural land uses into suburban/urban land uses. It is possible that some improvement in surface water quality may result from the conversion of agricultural land to residential/commercial uses, since developments that disturb one acre or more of land are required to conform to NPDES permit requirements, including implementation of best management practices to improve water quality of discharge from the development; whereas agricultural land uses are not subject to surface water quality management requirements. However, the *Mississippi Scenic Riverway Management Plan* identified threats that could affect the river's water quality in the future. Municipal wastewater discharges into the river and rapid urban development along the corridor are two such threats that contribute to water quality problems in the river, as evidenced by the inclusion of the river in the 'impaired waters' list due to high fecal coliform levels. Agricultural uses, which often include the application of pesticides and nutrients (e.g., nitrogen and phosphorous) also threaten the water quality of the river.

Future residential and commercial development in the study area would result in increased impervious surface areas and thus an increase in stormwater runoff within the study area. As discussed in Section 11.2.9.2, increased runoff volumes can result in a variety of negative impacts on receiving water bodies if not properly mitigated. However, it is anticipated that future development will continue to be required to implement stormwater management (detention and treatment) practices to reduce the magnitude of these impacts, including, at a minimum, implementation of practices in conformance with federal NPDES requirements for construction activities, thereby mitigating potential development impacts to surface waters.

11.2.9.4 Potential for Cumulative Impacts

There are federal and state surface water management regulations in place that require mitigation in conjunction with proposed development and bridge and roadway projects. Adequate treatment of sanitary sewage discharges from future developments will be important in maintaining water quality of the Mississippi River. Given the design standards and management controls available for protecting the quality of surface waters and the rate of stormwater discharge, it is likely that potential impacts of the proposed project, along with future development, will be minimized or mitigated to a substantial degree (possibly even resulting in an overall improvement in water quality compared to existing conditions), and adverse cumulative impacts to water quality and quantity are not anticipated. However, if these mitigation strategies are not implemented, substantial cumulative impacts to water quality could result.

11.3 CONCLUSIONS

The potential for cumulative impacts resulting from the proposed I-94/TH 10 Interregional Connection project combined with the future land use and associated infrastructure planned for the study area was examined for those resources with the greatest potential for cumulative impacts, including: wetlands; vegetation, wildlife and fisheries; farmland; traffic noise; visual; water quality; and the Mississippi Scenic Riverway. The Mississippi Scenic Riverway was determined to be a resource with the greatest potential for substantial cumulative impacts from the I-94/TH 10 Build Alternatives in combination with other foreseeable future actions (future development and additional river crossing bridges). The other resources analyzed in this cumulative impacts assessment could also be susceptible to substantial future cumulative impacts if mitigation strategies are not adequately implemented. The implementation of mitigation strategies (i.e., state and federal regulations, local land use practices, etc.) is key in avoiding/minimizing the extent and severity of impacts from the proposed project and future development.

[THIS PAGE LEFT BLANK INTENTIONALLY]